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Methodological Approaches in Analyzing the Strength of Seasonality in Tourism Time Series

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Abstract: This paper investigates methodological strategies for analyzing seasonality in tourism time series, employing advanced methods such as Seasonal-Trend decomposition using Loess (STL), the GINI index, and a seasonality index, we unravel complex temporal patterns. STL decomposition can be applied to time series data, revealing trend, seasonal, and residual components. The GINI index measures distributional inequality of tourism activity across seasons, while the seasonality index quantifies the intensity of fluctuations between quarters or months of high and low season.

• Introduction

Seasonality is a significant force in tourism, profoundly shaping traveler behavior, economic viability, and resource management. The cyclicity of tourism demand, influenced by factors like weather and cultural events, creates distinct high and low seasons with significant impacts. Recognizing the importance of seasonality is crucial for optimizing operations and fostering sustainable growth in the tourism sector. In sustainable tourism, seasonality takes on added significance, offering opportunities to balance economic, environmental, and socio-cultural considerations.

• Material and method

This research relies on a thorough review of academic resources, including articles and books, to explore diverse methodologies for measuring seasonality in the tourism industry and in other types of time series. The synthesis of information from these resources forms the foundation for understanding seasonality strength measurement in the context of tourism. This literature-driven methodology ensures a comprehensive analysis by integrating various perspectives, enriching the exploration of the intricate relationship between seasonality and sustainability in tourism.

• Results and discussions

STL decomposition facilitates the disentanglement of time series data into trend, seasonal, and residual components, providing a nuanced perspective on the underlying patterns. The GINI index, traditionally used to measure income inequality, is adapted to quantify the distributional inequality of tourism activity across different seasons. Finally, the seasonality index is employed to quantify the intensity of seasonal variations, being defined as the ratio between high-season and low season value.

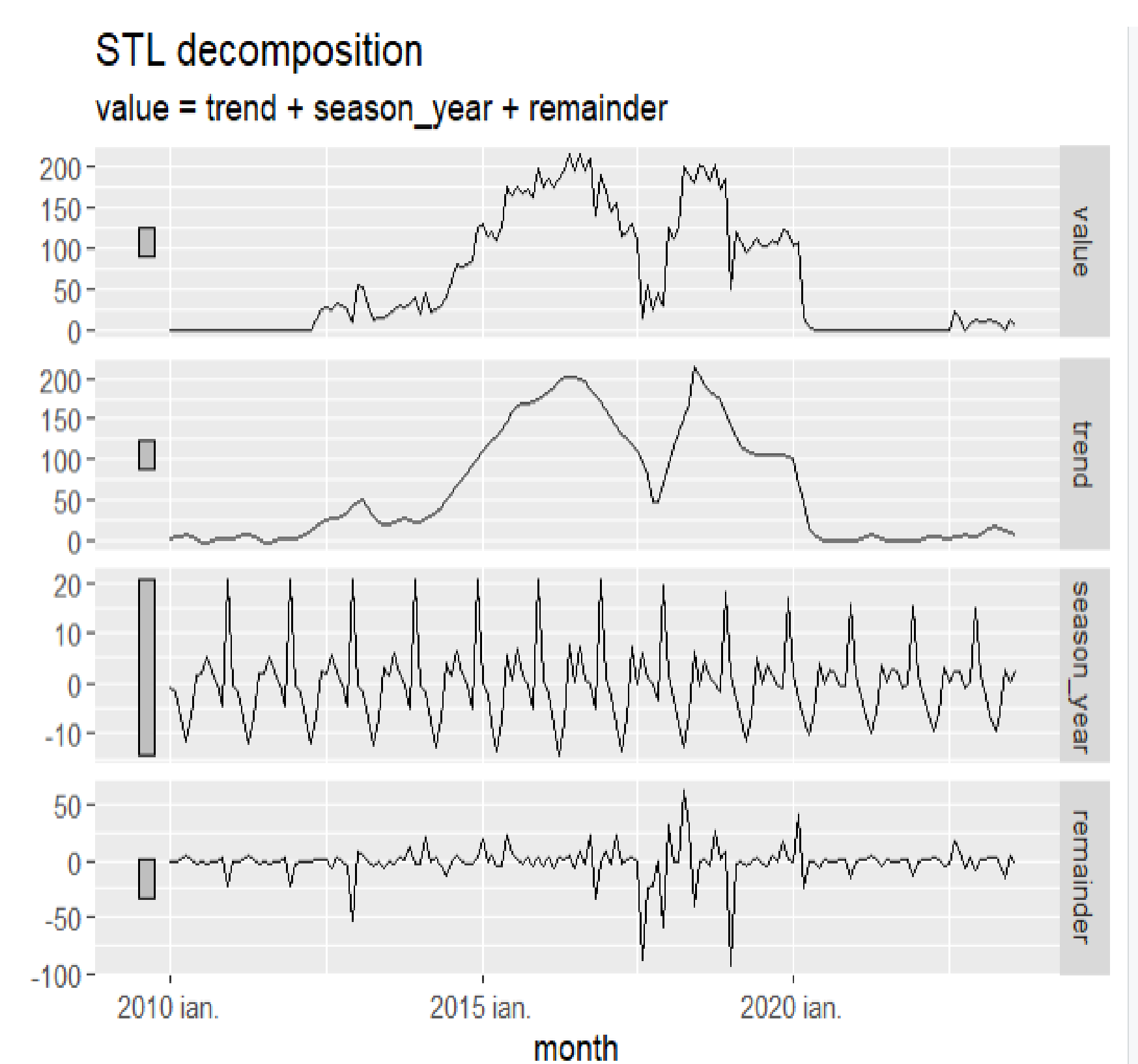


Fig. 1: Example of STL decomposition in the context of tourism

• Conclusions

In conclusion, this study provides valuable insights into the temporal dynamics of the tourism industry, offering several ways to quantify seasonality.